

Gregg Galecki, Environ. Coordinator HCR 35, Box 380 Helper, UT 84526 (435) 448-2636 - Office (435) 448-2632 - Fax

April 4, 2006

Ms. Pam Grubaugh-Littig
Permit Supervisor
Utah Division of Oil, Gas and Mining
1594 West North Temple, Suite 1210
Salt Lake City, Utah 84114-5801

RE: Modification to Water Monitoring Tables, Canyon Fuel Company, LLC, Skyline Mine,

C/007/005,

Dear Ms. Grubaugh-Littig:

Please find enclosed with this letter modifications to the Skyline Mine Water Monitoring tables 2.3.7-1 through 2.3.7-2A. As has been discussed with Ms. Dean, the focus of the submittal is to ensure the Water Monitoring tables are consistent with both long term commitments in the M&RP, and the analysis reduction modification submitted in 2005. Efforts were also made to make the tables easier to read and understand. A complete 'overhaul' of the tables will be made in the near future that will provide demonstrations to eliminate specific laboratory analysis that are no longer necessary. The future submittal will potentially allow a significant simplification of the tables.

The current submittal includes clarification items such as adding the letter "W" for all winter sampling, the letter "H" for production well sampling, and listing a site twice if two (2) separate sampling frequencies apply. Additionally, typographic errors such as "1, 2" have been modified to "12" where appropriate. No modifications have been made that are not currently supported in the text of the M&RP.

This submittal includes completed C1 and C2 forms and both eight (8) redline/strikethrough and Eight (8) copies of modified text.

If you have any questions, please call me at (435) 448-2636.

Sincerely,

Grego A. Galecki

Environmental Coordinator, Skyline Mine

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Canyon Fuel Company, LLC

enclosures

APR 12 2006

DIV. OF OIL, GAS & MINING

#### APPLICATION FOR COAL PERMIT PROCESSING

Permit Change ☑ New Permit ☐ Renewal ☐ Exploration ☐	Bond Release	Transfer
Permittee: Canyon Fuel Company, LLC		
Mine: Skyline Mine	Permi	t Number: C/007/005
Title: North Lease Subsidence Submittal		
<b>Description</b> , Include reason for application and timing required to implement:		
Modification to the M&RP Water Monitoring Tables - Section	2.3	
<u> </u>		
Instructions: If you answer yes to any of the first eight (gray) questions, the	nis application may re	equire Public Notice publication.
<ol> <li>Yes ⋈ No</li> <li>Change in the size of the Permit Area? Acres:</li></ol>	rder? DO#ously identified Cum pasins other than as con or increase of insurablication?	sulative Hydrologic Impact Area?  currently approved?  ance or reclamation bond?
Yes No  No  S. Is proposed activity within 100 feet of a public road or  Yes No  9. Is the application submitted as a result of a Violation?  10. Is the application submitted as a result of other laws or  Explain:	cemetery or 300 feet NOV #	of an occupied dwelling?
Yes No 11. Does the application affect the surface landowner or character of the surface landowner or character or	esign or mine sequent reporting of any base	ce and timing? (Modification of R2P2) line information?
Yes No 15. Does the application require or include soil removal, st	orage or placement?	
Yes No 16. Does the application require or include vegetation mon Yes No 17. Does the application require or include construction, m		
Yes No 18. Does the application require or include water monitoring	ng, sediment or drain	age control measures?
Yes No 19. Does the application require or include certified design	s, maps or calculatio	n?
Yes No 20. Does the application require or include subsidence con	trol or monitoring?	
Yes No 21. Have reclamation costs for bonding been provided?		
Yes No 22. Does the application involve a perennial stream, a stream		
Yes No 23. Does the application affect permits issued by other age	ncies or permits issu	ed to other entities?
Please attach four (4) review copies of the application. If the mine is on (5) copies, thank you. (These numbers include a copy for the Price Field Office)	or adjacent to Fore	st Service land please submit five
I hereby certify that I am a responsible official of the applicant and that the information contain and belief in all respects with the laws of Utah in reference to commitments, undertakings, and  Nesley Sorcuse  Description	obligations, herein.	Source 4/4/06  Manager
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My commission Expires: 2007		
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		APR 1 2 2005
		DIV. OF OIL, GAS & MINING

Form DOGM- C1 (Revised March 12, 2002)

### APPLICATION FOR COAL PERMIT PROCESSING Detailed Schedule Of Changes to the Mining And Reclamation Plan

Permitte		Fuel Company		2.50
Mine: _	Skyline Mine			Number: <u>C/007/005</u>
Title: _	Modification	to the M&RP	Water Monitoring Tables - Section 2.3	
application of conten	on. Individually its, section of the	vlist all maps a e plan, or other	to the Mining and Reclamation Plan, which is required as and drawings that are added, replaced, or removed from the information as needed to specifically locate, identify and remaining number as part of the description.	plan. Include changes to the table revise the existing Mining and
<b>□</b> ∧ 1.1	<b>⊠</b> p1	Пъ	DESCRIPTION OF MAP, TEXT, OR MATERIA	
Add	☐ Replace	Remove	Replace Table 2.3.7-1 through Table 2.3.7.2A, Pages 2-3	30 ull ough 2-37a in Section 2.3
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Mining a	and Reclamatio	n Plan.	on required for insertion of this proposal into the	Received by Oil, Gas & Mining
Eight (8)	redline/striketh	rough and eigh	t (8) clean copies submitted	APR 1 2 2006
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Form DOGM - C2 (Revised March 12, 2002)

# Table 2.3.7-1 Comprehensive Water Quality Analytical Schedule (Surface and Ground Water Stations)

CS-1 CS-3 A 1, 2, 6, 7 CS-4 A 1, 2, 6, 7 CS-6 A 1, 2, 6, 7 CS-7 CS-7 CS-7 CS-7 CS-8 A 1, 2, 6, 7 A 1, 2, 6, 7 CS-9 A 1, 2, 6, 7 CS-10 A 12 CS-9 A 1, 2, 6, 7 CS-11 A 1, 2, 6, 7 CS-12 A, W, 1, 2, 3, 6, 7 CS-13 A, W, 1, 2, 3, 6, 7 CS-14 A, W, 1, 2, 3, 6, 7 CS-15 A-19 A 12 CS-16 A 12 CS-17 A 12 CS-17 A 12 CS-18 A 1, 2 CS-19 A 1, 2 CS-20 A 1, 2 CS-21 A 1, 2 CS-22 D 4+10 MD-1 A+2, B 4 MD-1 B 10 CS-22 D 4+10 CS-10 CS-23 D 4+10 CS-24 CS-25 CS-26 CS-27 CS-28 CS-28 CS-28 CS-28 CS-28 CS-29 CS-29 CS-29 CS-29 CS-20 CS	Streams	<u>Protocol</u>	Comments
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CS-19 CS-20 CS-20 CS-21 CS-22 CS-22 D ++10 CS-23 DD ++10 MD-1 MD-1 MD-1 B 10 CS ame as MD-1) F-9 C 12 F-10 MC-1 MC-1 MC-2 MC-3 MC-4 MC-6 NL-1 through NL-40 WRDS #1 WRDS #2 WRDS #4 WRDS #6 WRDS #4 WRDS #6 WRDS #7 WR			
CS-20 CS-21 CS-22 CS-23 D ++10 CS-23 DD++10 SRD-1 F-9 C 12 F-10 A 1, 2 and C UP&L-10 VC-6 A'-A, W, 1, 2, 3, 6, 7, 9 VC-9 A'-A, W, 12 VC11 VC12 D 10 VC12 D 10 VC12 D 10 WC-1 A'-A, W, 4 MC-2 A'-A, W, 4 MC-3 MC-4 MC-4 MC-5 MC-6 NL-1 through NL-40 WRDS #1 WRDS #2 WRDS #4 WRDS #4 EL-1  KMIne discharge - CS-12 and CS-14 combined) (Same as MD-1) (Same as MD-1) (Same as MD-1) Flow is sum of CS-6 and CS-14 combined)  Mine discharge - CS-12 and CS-14 combined)  Sample spring sum of CS-6 and CS-14 combined)  North Lease Subsidence Points			
CS-21 CS-22 CS-23 D ++10 MD-1 A'1, 2, B 4 MD-1 F-9 C 12 F-10 A 1, 2 and C UP&L-10 VC-6 A'-A, W, 1, 2, 3, 6, 7, 8, 9 VC-9 VC-10 VC11 VC12 D 10 VC12 D 10 MC-1 A'A, W, 4 MC-2 A'A, W, 4 MC-3 MC-4 MC-5 MC-6 NL-1 through NL-40 WRDS #1 WRDS #2 WRDS #3 WRDS #4 EL-1  Kine discharge - CS-12 and CS-14 combined) (Same as MD-1) (Same as MD-1) (Same as MD-1) F-9 Flow is sum of CS-6 and CS-13 A'1, 2, 3, 6, 7, 8, 9 Flow is sum of CS-6 and CS-13 VC10 A'A, W, 12 D 10 North Lease Subsidence Points VC15 A 1, 2, 6, 7 WRDS #3 A 1, 2, 6, 7 WRDS #4 KIL-1 A 13 Sample spring, summer, and fall for			
CS-22 CS-23 D 4+10 MD-1 A+1,2,B 4 (Mine discharge - CS-12 and CS-14 combined) SRD-1 F-9 C 12 F-10 A 1, 2 and C UP&L-10 VC-6 A+A, W, 1, 2, 3, 6,7,9 VC-9 A+A, W, 12, 3, 6,7,8,9 VC10 VC11 D 10 VC12 D 10 MC-1 MC-2 A+A, W, 4 MC-2 A+A, W, 4 MC-5 MC-6 A+A, W, 4 MC-5 MC-7 WRDS #1 A 1, 2, 6, 7 WRDS #2 WRDS #3 WRDS #4 EL-1 Sample spring, summer, and fall for			
CS-23 MD-1 MD-1 A'1, 2, B 4 (Mine discharge - CS-12 and CS-14 combined) SRD-1 F-9 C 12 F-10 A 1, 2 and C UP&L-10 VC-6 A'-A, W, 1, 2, 3, 6,7,9 VC-9 A'-A, W, 1, 2, 3, 6,7,8,9 VC10 VC11 D 10 VC12 D 10 MC-1 MC-2 A'-A, W, 4 MC-3 MC-4 MC-3 MC-4 MC-5 MC-6 A'-A, W, 4 MC-5 MC-6 A'-A, W, 4 MC-6 NC-1 MC-1 MC-1 MC-1 MC-2 A'-A, W, 4 MC-5 MC-3 MC-4 MC-5 MC-6 A'-A, W, 4 MC-5 MC-7 WRDS #1 A 1, 2, 6, 7 WRDS #2 A 1, 2, 6, 7 WRDS #3 WRDS #4 A 1, 2, 6, 7 WRDS #4 EL-1 Sample spring, summer, and fall for		The state of the s	
MD-1 SRD-1 B 10 (Same as MD-1) F-9 C 12 F-10 A 1, 2 and C UP&L-10 A 1, 2 C-6 A'-A, W, 1, 2, 3, 6,7,9 VC-9 VC-10 VC12 D 10 VC12 D 10 VC12 D 10 MC-1 MC-2 A'-A, W, 4 MC-2 MC-3 MC-4 MC-5 MC-6 A'-A, W, 4 MC-5 MC-6 NL-1 through NL-40 WRDS #1 WRDS #2 WRDS #3 WRDS #4 EL-1  K 10 K 2 (Mine discharge - CS-12 and CS-14 combined) (Same as MD-1) (S			
SRD-1 F-9 C 12 F-10 A 1, 2 and C UP&L-10 VC-6 A'-A, W, 1, 2, 3, 6, 7, 9 VC-9 A'-A, W, 1, 2, 3, 6, 7, 8, 9 VC11 D 10 VC12 D 10 MC-1 MC-2 MC-3 MC-4 MC-3 MC-4 MC-5 MC-6 NL-1 through NL-40 WRDS #1 WRDS #2 WRDS #3 WRDS #4 EL-1  S ample spring, summer, and fall for			(Mine discharge - CS-12 and CS-14 combined)
F-9 F-10 A 1, 2 and C UP&L-10 VC-6 A'-A, W, 1, 2, 3, 6,7,9 VC-9 A'-A, W, 1, 2, 3, 6,7,8,9 VC11 D 10 VC12 D 10 MC-1 MC-2 MC-3 MC-3 MC-4 MC-5 MC-6 NL-1 through NL-40 WRDS #1 WRDS #2 WRDS #3 WRDS #4 EL-1  C 12 A 1, 2 and C A 1, 2 and C A 1, 2 A 1, 2, 6, 7 WRDS #4 Flow is sum of CS-6 and CS13			
F-10 UP&L-10 A 1, 2 and C UP&L-10 VC-6 A'-A, W, 1, 2, 3, 6,7,9 VC-9 A'-A, W, 1, 2, 3, 6,7,8,9 VC10 A'-A, W, 12 VC11 D 10 VC12 D 10 MC-1 A'-A, W, 4 MC-2 A'-A, W, 4 MC-3 MC-4 MC-3 MC-4 MC-5 MC-6 A'-A, W, 4 MC-5 MC-6 NL-1 through NL-40 WRDS #1 A 1, 2, 6, 7 WRDS #2 WRDS #3 WRDS #4 EL-1 A 13 Sample spring, summer, and fall for			(Samo do MB 1)
UP&L-10       A 1, 2         VC-6       A+A, W, 1, 2, 3, 6,7,9         VC-9       A+A, W, 1, 2, 3, 6,7,8,9         VC10       A+A, W, 12         VC11       D 10         VC12       D 10         MC-1       A+A, W, 4         MC-2       A+A, W, 4         MC-3       A+A, W, 4         MC-4       A+A, W, 4         MC-5       A+A, W, 4         MC-6       A+A, W, 4         NL-1 through NL-40       F+2 10       North Lease Subsidence Points         WRDS #1       A 1, 2, 6, 7         WRDS #2       A 1, 2, 6, 7         WRDS #3       A 1, 2, 6, 7         WRDS #4       A 1, 2, 6, 7         EL-1       A 13       Sample spring, summer, and fall for			
VC-6       A+A, W, 1, 2, 3, 6,7,9         VC-9       A+A, W, 1, 2, 3, 6,7,8,9         VC10       A+A, W, 12         VC11       D 10         VC12       D 10         MC-1       A+A, W, 4         MC-2       A+A, W, 4         MC-3       A+A, W, 4         MC-4       A+A, W, 4         MC-5       A+A, W, 4         MC-6       A+A, W, 4         NL-1 through NL-40       F +2 10       North Lease Subsidence Points         WRDS #1       A 1, 2, 6, 7         WRDS #2       A 1, 2, 6, 7         WRDS #3       A 1, 2, 6, 7         WRDS #4       A 1, 2, 6, 7         EL-1       A 13    Sample spring, summer, and fall for			
VC-9       A'-A, W, 1, 2, 3, 6,7,8,9       Flow is sum of CS-6 and CS13         VC10       A'-A, W, 12         VC11       D 10         VC12       D 10         MC-1       A'-A, W, 4         MC-2       A'-A, W, 4         MC-3       A'-A, W, 4         MC-4       A'-A, W, 4         MC-5       A'-A, W, 4         MC-6       A'-A, W, 4         NL-1 through NL-40       F-12 10         North Lease Subsidence Points         WRDS #1       A 1, 2, 6, 7         WRDS #2       A 1, 2, 6, 7         WRDS #3       A 1, 2, 6, 7         WRDS #4       A 1, 2, 6, 7         EL-1       A 13    Sample spring, summer, and fall for			6.7.9
VC10       A*A, W, 12         VC11       D 10         VC12       D 10         MC-1       A*A, W, 4         MC-2       A*A, W, 4         MC-3       A*A, W, 4         MC-5       A*A, W, 4         MC-6       A*A, W, 4         NL-1 through NL-40       F 12 10       North Lease Subsidence Points         WRDS #1       A 1, 2, 6, 7         WRDS #2       A 1, 2, 6, 7         WRDS #3       A 1, 2, 6, 7         WRDS #4       A 1, 2, 6, 7         EL-1       A 13       Sample spring, summer, and fall for			
VC11       D 10         VC12       D 10         MC-1       A'A, W, 4         MC-2       A'A, W, 4         MC-3       A'A, W, 4         MC-4       A'A, W, 4         MC-5       A'A, W, 4         MC-6       A'A, W, 4         NL-1 through NL-40       F 12 10       North Lease Subsidence Points         WRDS #1       A 1, 2, 6, 7         WRDS #2       A 1, 2, 6, 7         WRDS #3       A 1, 2, 6, 7         WRDS #4       A 1, 2, 6, 7         EL-1       A 13       Sample spring, summer, and fall for			, , , , ,
VC12       D 10         MC-1       A*A, W, 4         MC-2       A*A, W, 4         MC-3       A*A, W, 4         MC-4       A*A, W, 4         MC-5       A*A, W, 4         MC-6       A*A, W, 4         NL-1 through NL-40       F 12 10       North Lease Subsidence Points         WRDS #1       A 1, 2, 6, 7         WRDS #2       A 1, 2, 6, 7         WRDS #3       A 1, 2, 6, 7         WRDS #4       A 1, 2, 6, 7         EL-1       A 13       Sample spring, summer, and fall for			
MC-1 MC-2 A'A, W, 4 MC-3 MC-4 MC-5 A'A, W, 4 MC-5 MC-6 NL-1 through NL-40 WRDS #1 WRDS #2 WRDS #3 WRDS #4 EL-1 A 13 Sample spring, summer, and fall for	VC12	D 10	
MC-2       A+A, W, 4         MC-3       A+A, W, 4         MC-4       A+A, W, 4         MC-5       A+A, W, 4         MC-6       A+A, W, 4         NL-1 through NL-40       F +2 10       North Lease Subsidence Points         WRDS #1       A 1, 2, 6, 7         WRDS #2       A 1, 2, 6, 7         WRDS #3       A 1, 2, 6, 7         WRDS #4       A 1, 2, 6, 7         EL-1       A 13         Sample spring, summer, and fall for	MC-1		
MC-4 MC-5 MC-6 MC-6 NL-1 through NL-40 WRDS #1 WRDS #2 WRDS #3 WRDS #3 WRDS #4 EL-1 A 13 A'A, W, 4 A'A, W, 4 North Lease Subsidence Points NRDS #4 A 1, 2, 6, 7 Sample spring, summer, and fall for	MC-2		
MC-5       A'A, W, 4         MC-6       A'A, W, 4         NL-1 through NL-40       F 12 10       North Lease Subsidence Points         WRDS #1       A 1, 2, 6, 7         WRDS #2       A 1, 2, 6, 7         WRDS #3       A 1, 2, 6, 7         WRDS #4       A 1, 2, 6, 7         EL-1       A 13         Sample spring, summer, and fall for	MC-3	A'A, W, 4	
MC-5       A*A, W, 4         MC-6       A*A, W, 4         NL-1 through NL-40       F 12 10       North Lease Subsidence Points         WRDS #1       A 1, 2, 6, 7         WRDS #2       A 1, 2, 6, 7         WRDS #3       A 1, 2, 6, 7         WRDS #4       A 1, 2, 6, 7         EL-1       A 13         Sample spring, summer, and fall for	MC-4	A'A, W, 4	
MC-6       #A, W, 4         NL-1 through NL-40       F 12 10       North Lease Subsidence Points         WRDS #1       A 1, 2, 6, 7         WRDS #2       A 1, 2, 6, 7         WRDS #3       A 1, 2, 6, 7         WRDS #4       A 1, 2, 6, 7         EL-1       A 13         Sample spring, summer, and fall for	MC-5	A'A, W, 4	
WRDS #1 A 1, 2, 6, 7 WRDS #2 A 1, 2, 6, 7 WRDS #3 A 1, 2, 6, 7 WRDS #4 A 1, 2, 6, 7 EL-1 A 13 Sample spring, summer, and fall for	MC-6		
WRDS #2 WRDS #3 A 1, 2, 6, 7 WRDS #4 A 1, 2, 6, 7 EL-1 A 13 Sample spring, summer, and fall for	NL-1 through NL-40	F <del>12</del> 10	North Lease Subsidence Points
WRDS #2 WRDS #3 A 1, 2, 6, 7 WRDS #4 A 1, 2, 6, 7 EL-1 A 13 Sample spring, summer, and fall for	WRDS #1	A 1, 2, 6, 7	
WRDS #3 A 1, 2, 6, 7 WRDS #4 A 1, 2, 6, 7 EL-1 A 13 Sample spring, summer, and fall for	WRDS #2		
WRDS #4 A 1, 2, 6, 7 EL-1 A 13 Sample spring, summer, and fall for	WRDS #3		
EL-1 A 13 Sample spring, summer, and fall for	WRDS #4		
	EL-1		Sample spring, summer, and fall for
	EL-2	A 13	

# Table 2.3.7-1 (cont.) Comprehensive Water Quality Analytical Schedule (Surface and Ground Water Stations)

Springs	<u>Protocol</u> <u>Comments</u>
\$10-1	A 1, 2
S12-1	A 1, 2
S13-2	A 12
S13-7	A 1, 2
S14-4	A 12
S15-3	A 12, 13 (13 - spring and fall for 3 years starting in 2004)
S15-3	G 13 (13 - spring and fall for 3 years starting in 2004)
S17-2	A 1, 2
S22-5	A 12
S22-11	A 12
S23-4	A 12
S24-1 Sulfur Spring	A 1, 2, G 13 (13 - spring and fall for 3 years starting in 2004)
S24-12	A 12
S26-13	A 12
S34-12	A 12
S35-8	A 12
S36-12	A 12
2-413	A 12, <del>13 (13 - spring and fall for 3 years starting in 2004)</del>
2-413	G 13 (13 - spring and fall for 3 years starting in 2004)
3-290	A 12
8-253	G 13 Sampled spring and fall for 3 years starting in 2004
WQ1-39	A 1, 2
WQ3-6	A 1, 2
WQ3-26	A 1, 2
WQ3-41	
	A 1, 2
WQ3-43	A 1, 2
WQ4-12	A 1, 2
Wells	
	A F and PD II F
JC-1	A 5 and BB, H 5
JC-3	A 4 and BB, H 4
ELD-1	B 10 (JC-1 and JC-3 combined)
W79-10-1B	E 11
W79-14-2A	E 11
W79-26-1	E 11
W79-35-1A	E 11
W79-35-1B	E 11
W2-1 (98-2-1)	E 11
W20-4-1	E 11
W20-4-2	E 11
W99-4-1	E 11
W99-21-1	E 11
W99-28-1	E 11
W20-28-1	E 11
91-26-1	E 11
91-35-1	E 11

## Table 2.3.7-1 (cont.) Comprehensive Water Quality Analytical Schedule (Surface and Ground Water Stations)

#### Field and Laboratory Measurement Protocol

#### Water Level and Flow Measurements

Α	Stream and Springs: high spring (April - June), low summer flow (August - September),
	and late fall (October - November)
A'W	Stream and Springs: winter season (December - February) monitoring included
В	Stream, Springs, and Wells: monthly discharge measurements, reported in first 7 days
	following end of month
С	Stream and Springs: monthly flows when accessible.
D	Stream: seasonal discharge measurements (April - June, August - September,
	October - November)
E	Monitoring well: seasonal water level measurement (April - June, August -
	September, October - November)
F	Streams: monthly flows June through October, earlier and later if accessible. To be
	monitored one year prior to, during, and one year following undermining.
G	Springs: high spring and late fall sampling
Н	Production Wells: (Quarterly)

#### Water Quality

- High spring and late fall (April June and October November) water quality field and operational laboratory measurements
   Low summer flow (August September) water quality field and operational laboratory measurements
- Winter season (December February) water quality field and operational laboratory measurements
- 4 Seasonal water quality field measurements, TDS, TSS, and total phosphorous
- Seasonal water quality field measurements, TDS, TSS, and total phosphorous, C14, tritium, and stable isotopes deuterium and oxygen 18
- 6 Also oil and grease, phenols
- 7 Total organic carbon and cyanide (low summer flow only)
- 8 Also total phosphorous
- 9 Also dissolved oxygen
- 10 Seasonal flow Flow only
- 11 Seasonal water Water levels
- 12 Field parameters only\*\*
- 13 Tritium

<sup>\*\*</sup> Sites with at least two (2) years of lab analysis data will be sampled once every five (5) years for the currently approved laboratory parameters beginning in 2010. If field parameter monitoring indicates any trending changes, regular laboratory analysis may be resumed until trend is adequately characterized.

Table 2.3.7-2
Water Quality Analytical Schedule
Streams and Springs
High Spring (April - June),
Late Fall (October - November), and
Winter (December - February) Flows

#### Field Measurements

Flow pH Specific Conductance Temperature, Air Temperature, Water Turbidity

#### **Laboratory Measurements**

Ammonia
Bicarbonate
Calcium, dissolved
Chloride
Iron, Total and dissolved
Magnesium, dissolved
Manganese, total and dissolved
Nitrate
Phosphate (Orthophosphate)
Potassium, dissolved
Sodium, dissolved
Sulfate
Suspended Solids
Total Dissolved Solids

Table 2.3.7-2A
Water Quality Analytical Schedule
Streams and Springs
-Low Summer Flow(August - September)

#### Field Measurements

Flow
Dissolved Oxygen
pH
Specific Conductance
Temperature, Air
Temperature, Water
Turbidity

#### **Laboratory Measurements**

**Acidity Alkalinity** Bicarbonate Ammonia Barium, Total and dissolved Boron Total and dissolved Calcium, dissolved Chloride Copper, total and dissolved Fluoride Iron, total and dissolved Lead, total and dissolved Magnesium, dissolved Manganese, total and dissolved Nitrate Phosphate (Orthophosphate) Potassium, dissolved Sodium, dissolved Sulfate Suspended Solids **Total Dissolved Solids** 

#### Table 2.3.7-1

### Comprehensive Water Quality Analytical Schedule (Surface and Ground Water Stations)

Streams	<u>Protocol</u>	Comments
CS-1	A 12	<u></u>
CS-3	A 1, 2, 6, 7	
CS-4	A 1, 2, 6, 7	
CS-6	A, W, 1, 2, 3, 6, 7, 10	
CS-7 (F-5)	A 12	
CS-8	A 12	
CS-9	A 1, 2, 6,7	
CS-10	A 12	
CS-11	A 1, 2, 6, 7	
CS-12	A, W, 1, 2, 3, 6, 7	
CS-13	A, W, 1, 2, 3, 6,7	
CS-14	A, W, 1, 2, 3, 6,7	
CS-15	A 10	
CS-16	A 12	
CS-17	A 12	
CS-18	A 12	
CS-19	A 1, 2	
CS-20	A 1, 2	
CS-21	<b>A</b> 1, 2	
CS-22	D 10	
CS-23	D 10	
MD-1	B 4 (Mine discharge	e - CS-12 and CS-14 combined)
SRD-1	B 10 (Same	as MD-1)
F-9	C 12	
F-10	<b>A</b> 1, 2 and C	
UP&L-10	A 1, 2	
VC-6	A, W, 1, 2, 3, 6,7,9	
VC-9	A, W, 1, 2, 3, 6,7,8,9	Flow is sum of CS-6 and CS13
VC10	A, W, 12	
VC11	D 10	
VC12	D 10	
MC-1	A, W, 4	
MC-2	A, W, 4	
MC-3	A, W, 4	
MC-4	A, W, 4	
MC-5	A, W, 4	
MC-6	A, W, 4	and a Code side was a Dainte
NL-1 through NL-40		_ease Subsidence Points
WRDS #1 WRDS #2	A 1, 2, 6, 7	
WRDS #2 WRDS #3	A 1, 2, 6, 7	
WRDS #4	A 1, 2, 6, 7	
EL-1	A 1, 2, 6, 7 A 13	Sample enring summer and fall for
EL-2	A 13	Sample spring, summer, and fall for 3 years beginning in 2004
LL-2	A IS	o years beginning in 2004

### Table 2.3.7-1 (cont.)

### Comprehensive Water Quality Analytical Schedule (Surface and Ground Water Stations)

<u>Springs</u>	Protocol Comments
S10-1	A 1, 2
S12-1	A 1, 2
S13-2	A 12
S13-7	A 1, 2
S14-4	A 12
S15-3	A 12
S15-3	G 13 (13 - spring and fall for 3 years starting in 2004)
S17-2	A 1, 2
S22-5	A 12
S22-11	A 12
S23-4	A 12
S24-1 Sulfur Spring	G 13 (13 - spring and fall for 3 years starting in 2004)
S24-12	A 12
S26-13	A 12
	A 12
S34-12 S35-8	A 12
S36-12	A 12
2-413	A 12,
2-413	G 13 (13 - spring and fall for 3 years starting in 2004)
3-290	A 12
8-253	G 13 Sampled spring and fall for 3 years starting in 2004
WQ1-39	A 1, 2
WQ3-6	A 1, 2
WQ3-26	A 1, 2
WQ3-41	A 1, 2
WQ3-43	A 1, 2
WQ4-12	A 1, 2
Wells	
JC-1	B, H 5
JC-3	B, H 4
ELD-1	B 10 (JC-1 and JC-3 combined)
W79-10-1B	E 11
W79-14-2A	E 11
W79-26-1	E 11
W79-35-1A	E 11
W79-35-1B	E 11
W2-1 (98-2-1)	E 11
W20-4-1	E 11
W20-4-2	E 11
W99-4-1	E 11
W99-21-1	E 11
W99-28-1	E 11
W20-28-1	E 11
91-26-1	E 11
91-35-1	E 11
01- <del>00-</del> 1	L 11

### Table 2.3.7-1 (cont.) Comprehensive Water Quality Analytical Schedule (Surface and Ground Water Stations)

#### **Field and Laboratory Measurement Protocol**

#### Water Level and Flow Measurements

Α	Stream and Springs: high spring (April - June), low summer flow (August - September), and late fall (October - November)
W	Stream and Springs: winter season (December - February) monitoring included
В	Stream, Springs, and Wells: monthly discharge measurements, reported in first 7 days following end of month
С	Stream and Springs: monthly flows when accessible.
D	Stream: seasonal discharge measurements (April - June, August - September, October - November)
E	Monitoring well: seasonal water level measurement (April - June, August - September, October - November)
F	Streams: monthly flows June through October, earlier and later if accessible. To be monitored one year prior to, during, and one year following undermining.
G	Springs: high spring and late fall sampling
Н	Production Wells: (Quarterly)

#### **Water Quality**

- High spring and late fall (April June and October November) water quality field and operational laboratory measurements
- 2 Low summer flow (August September) water quality field and operational laboratory measurements
- Winter season (December February) water quality field and operational laboratory measurements
- 4 Seasonal water quality field measurements, TDS, TSS, and total phosphorous
- Seasonal water quality field measurements, TDS, TSS, and total phosphorous, C14, tritium, and stable isotopes deuterium and oxygen 18
- 6 Also oil and grease, phenols
- 7 Total organic carbon and cyanide (low summer flow only)
- 8 Also total phosphorous
- 9 Also dissolved oxygen
- 10 Flow only
- 11 Water levels
- 12 Field parameters only\*\*
- 13 Tritium

<sup>\*\*</sup> Sites with at least two (2) years of lab analysis data will be sampled once every five (5) years for the currently approved laboratory parameters beginning in 2010. If field parameter monitoring indicates any trending changes, regular laboratory analysis may be resumed until trend is adequately characterized.

Table 2.3.7-2
Water Quality Analytical Schedule
Streams and Springs
High Spring (April - June),
Late Fall (October - November), and
Winter (December - February) Flows

#### Field Measurements

Flow pH Specific Conductance Temperature, Air Temperature, Water

#### **Laboratory Measurements**

Ammonia
Bicarbonate
Calcium, dissolved
Chloride
Iron, Total
Magnesium, dissolved
Manganese, Total
Nitrate
Phosphate (Orthophosphate)
Potassium, dissolved
Sodium, dissolved
Sulfate
Suspended Solids
Total Dissolved Solids

Table 2.3.7-2A
Water Quality Analytical Schedule
Streams and Springs
-Low Summer Flow(August - September)

#### Field Measurements

Flow
Dissolved Oxygen
pH
Specific Conductance
Temperature, Air
Temperature, Water

#### **Laboratory Measurements**

**Acidity Alkalinity** Bicarbonate Ammonia Barium, Total and dissolved Boron Total and dissolved Calcium, dissolved Chloride Copper, total and dissolved Fluoride Iron, total and dissolved Lead, total and dissolved Magnesium, dissolved Manganese, total and dissolved **Nitrate** Phosphate (Orthophosphate) Potassium, dissolved Sodium, dissolved Sulfate Suspended Solids **Total Dissolved Solids**